Ocular Ultrasound Identifies Early Orbital Cellulitis

Tarina L. Kang, MD
Dina Seif, MD
Mikiaela Chilstrom, MD
Tom Mailhot, MD

University of Southern California, Department of Emergency Medicine, Los Angeles, California

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A 36 year-old man with a history of a complicated oral surgery from a complex mandibular fracture months prior presented with traumatic right eye swelling, tearing, and redness. The patient was afebrile (36.7º C) and normotensive (121/79). Physical examination revealed upper and lower lid swelling and erythema without crepitance or proptosis, accompanied by conjunctival injection and copious tearing. His pupillary exam and intraocular pressures were normal. He had painless and unlimited extra-ocular movements. His visual acuity was 20/30 *oculus dexter*, 20/20 with pinhole; 20/40 *oculus sinister*, 20/40 with pinhole. A bedside ocular ultrasound using a Sonosite MTurbo® 7.5 MHz linear high frequency probe was performed showing edema along the anterior aspect of the orbit with nonspecific thickening of the orbital wall (Video). Based on these findings, an orbital computed tomography (CT) with contrast was performed, confirming the diagnosis of orbital cellulitis. The patient was admitted for intravenous antibiotics (vancomycin and ceftriaxone) and ophthalmology consultation.

While there are numerous studies supporting the use of orbital ultrasound to diagnose ocular trauma, the presence of intraocular foreign bodies, and other ocular abnormalities, there is limited evidence to suggest orbital ultrasound may have a role in diagnosing orbital cellulitis.[1-7] It is not likely that ocular ultrasound will negate the need for advanced imaging with CT and magnetic resonance imaging in patients with symptoms highly suggestive of orbital cellulitis (i.e., ophthalmoplegia, proptosis, and impaired vision.) However, ocular ultrasound may have a role in risk stratification for patients with more nonspecific symptoms, such as ocular pain, eyelid swelling, and erythema. Future observational studies are needed to better evaluate if orbital ultrasound has a role in identifying patients without obvious clinical features of orbital cellulitis who may benefit from advanced imaging.

Video. Edema along the anteriorlateral aspect of the orbit with nonspecific thickening of the orbital wall (white arrows).

Address for Correspondence: Tarina L. Kang, MD. LAC+USC Medical Center, Department of Emergency Medicine, 1200 North State Street Room 1011, Los Angeles, CA 90033. Email: tarina.lee.kang@gmail.com

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